

**An investigation into the structure of workaholism; the design of a new measure, tested against key antecedents and consequences.**

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## **Abstract**

The present study approaches the diverse array of literature surrounding workaholism, attempting to provide empirical support for a new model proposed by Ng, Sorenson and Feldman (2007). Following Ng et al.'s recommendations, a four-factor measure was designed and evaluated in terms of its psychometric properties and relationships to a number of theoretically related constructs. The sample was 107 individuals predominantly in jobs that were prone to workaholic like behaviour. My results showed that the 4-factor view of workaholism was empirically justified. The outcome was four reliable scales of 5-6 items, measuring cognitive obsession, behavioural involvement, work enjoyment and negative affect whilst away from work. Path modelling techniques found conscientiousness and work pressure to be significant predictors of workaholism, whilst job satisfaction, mental health and work family balance were significant consequences of workaholism. Workaholism partially mediated the relationships from work pressure to both job satisfaction and work family balance. The implications for the study revolve around organisations being aware that in hiring conscientious individuals into high pressure positions, these individuals are at risk of developing workaholism and reaping the respective consequences, therefore appropriate care must be taken to ensure employee's safety and wellbeing.

The concept of being addicted to work has received a substantial amount of attention since Oates (1971) termed it workaholism and there is now a range of publications spread throughout both academic and pop psychology literature. Despite many papers, however, there is still considerable uncertainty with regard to what exactly workaholism is and whether it is positively or negatively related to important health and organizational outcomes. The main problems are the constantly changing construct definitions and inconsistencies in empirical findings with regard to structure, antecedents, and consequences of the construct. In the pages that follow, I will briefly review this literature, discuss the latest paper by Ng, Sorenson and Feldman (2007) that lays out a new comprehensive model of workaholism, and present a rationale for an empirical study, in which I propose to conduct an empirical evaluation of that latest model.

### **Divergent Views on Workaholism**

The term workaholism is derived from the term alcoholism, originally termed by Oates (1971). He defined the construct as the uncontrollable need to work constantly, to the point of interfering with both relationships and health. Since Oates, the construct has received much attention from various perspectives, creating a diverse array of literature. The basic idea has however remained consistent; it is viewed as addiction to work (Fassel, 1990; Killinger, 1991; Scott et al., 1997; Robinson, 2004; Ng et al. 2007)

Initial papers on workaholism were vague and somewhat subjective, with issues of clarity regarding both definition and measurement of the construct (see McMillan et al., 2001; Scott, Moore & Miceli, 1997; Burke, 2000). Perspectives from clinical psychology contributed further to this lack of clarity, with personal experience being merged with clinical case studies forming a particularly murky array of literature (Robinson 1989, 2004; Killinger,

1990). The substantial number of authors contributing often conflicting ideas rather than empirical data has led the literature to an overall state of confusion.

In recognition of the lack of empirical evidence surrounding the construct Robinson (1999) developed a measure of workaholic tendencies. Rather than delving into the murky waters of what workaholism is, Robinson, (1998, 1999) operationalised the construct in terms of its consequences on family life and mental health. The only discussion of the construct itself was that the workaholics are overindulgent and preoccupied in their work. He also noted that workaholics are likely to use their work to confirm or obtain their self worth. The data behind Robinson's research was extracted from an unspecified number of clinical diagnosis and discussions with the workaholics and affected family members and led to the development of a measure called the Work Addiction Risk Test (Robinson, 1999). To date, Robinson's WART scale has been used in 6 other empirical studies and is the 2<sup>nd</sup> most frequently used measure.

More recent studies have utilized more contemporary psychometric methodologies to define workaholism and conceptualized it as a multidimensional construct consisting of two or three facets. For example, Spence and Robins (1992) proposed a three-dimensional definition where workaholism was operationalised as either low or high enjoyment, high drivenness and high involvement. Work enjoyment refers to the enjoyment of work related tasks; drivenness is defined as an inner motivation to work; and work involvement refers to behavioural involvement with the overall demands of the job, rather than any particular task. There has been past contention as to whether the intensity of involvement or the amount of involvement in terms of time is more significant to the definition of a workaholic. Involvement has in some cases been specifically looking at the individual's task involvement, whilst other researchers have used the term to discuss overall involvement with one's job, two quite different uses of the same term. Moving back to the drive facet, examination of the

items used to measure this factor in both Spence and Robins (1992) and McMillan (2002) show an emotional facet of anxiety and guilt whilst not working in addition to the cognitive aspect of intrinsic motivation. Spence and Robins (1992) emphasized that the three factors of their triad theory were not always correlated, in which case the individual showing only one or two of the three factors would be classified as a work enthusiast rather than a workaholic. Looking into their results in further detail revealed categories by which workaholics could be divided based upon differences in contributing antecedents.

The scale designed in Spence and Robins (1992) has been used in 14 of the total 28 empirically based workaholism studies published. Some recent studies have failed to replicate the three factor structure, (McMillan et al., 2001; McMillan & O'Driscoll, 2004; McMillan et al., 2004; Kanai et al., 1996). McMillan et al. (2001) found a two factor structure of high enjoyment and drivenness. Work involvement, or task involvement, which is consistent with Spence and Robins (1994) involvement, was found to be unrelated to the other facets of workaholism (McMillan, 2002). Therefore according to the findings of McMillan (2002) a workaholic is an individual who is high on work enjoyment and drivenness.

Scott et al. (1997) defined workaholism from a different angle again, with their definition comprising three factors: discretionary time spent working, working beyond organisational requirements, and constantly thinking about work. Conceptually discretionary time and working beyond organisational requirements are consistent with Spence and Robins' definitions of involvement, while the latter of the three factors, constantly thinking about work, brings in a cognitive involvement or obsession component.

In attempts to compensate for the disarray of theories, some researchers suggested typologies of workaholics incorporating different types of workaholics. Robinson & Flowers (2004) found two categories of workaholics in their clinical based research: those who highly enjoyed their job, and those who exhibited low work enjoyment. This may provide some



clarification as to why enjoyment as a factor of workaholism has jumped from high to low, to a near zero relationship across the literature (Spence & Robins, 1992; Robinson, 2004; Scott et al. 1997; McMillan, 2002). Finding no relationship could be caused by two extremes balancing each other out. Other categorical theories include Scott et al. (1997), who outlined three types of workaholics: the obsessive compulsive workaholic, the achievement oriented workaholic and the perfectionist workaholic. Due to the divergent views on workaholism demonstrated, the definition of workaholism throughout this discussion is fluid, dependant on the author in question.

### **Comprehensive Model of Workaholism and its Antecedents and Consequences by Ng, Sorenson, and Feldman (2007)**

In an attempt to provide some clarity Ng, Sorenson, and Feldman (2007) have put forward a comprehensive model based upon a thorough literature review. They encompassed the findings of 28 empirical studies, however their literature search found 131 publications total, with only 40 being academic, and 28 of which contained empirical data (Ng et al., 2007). A minor portion of the research has argued that the workaholism construct can be viewed as a positive trait, due to the high levels of happiness and satisfaction, whilst others have focused on the other effects, such as excessively high perfectionism, one's personal life revolving around work, and the frequent mention of poor mental health. Ng et al. (2007) have compiled such contradictions together.

#### Definition

Ng et al. (2007) proposed workaholism to be comprised of affective, behavioural and cognitive components. They drew from Smith and Seymour's (2004) discussion of addiction as consisting of compulsive use, loss of control and continued use despite the adverse effects. They concur with Smith and Seymour (2004) that compulsive use and loss of control form

the cognitive component of workaholism and compulsive behaviours form the behavioural component, but explicitly emphasize affective parts of the construct not discussed in Smith and Seymour (2004). However the definition posed by Ng et al. (2007) is specifically intended to encompass the three aspects of addiction as just discussed, with workaholism defined as *“those who enjoy the act of working, who are obsessed with working and devote long hours and personal time to work.”* (Ng et al., 2007, pg28). Further into Ng et al. (2007) two affective sides of workaholism emerge. Their initial discussion of work enjoyment, as outlined in the definition above is followed by a secondary affect facet, emotional involvement; in which negative emotions are experienced whilst away from work, including anxiety, depression and feelings of guilt (Ng et al., 2007; Morris & Charney, 1983). Past studies have measured anxiety and guilt within the drive facet. Spence and Robins (1992) defined drive as the inner motivation to work, while McMillan (2002) measured drive with items assessing feelings of guilt whilst not working, alongside other items more specific to an inner motivation to work.

The current model, (Ng et al., 2007) separated these negative emotions as a key facet of workaholism. Moving back to work enjoyment, the diversity in the literature was demonstrated in the previous section, whereby directionality of work enjoyment as a facet of workaholism has varied as both Spence and Robins (1992) and McMillan's (2002) discussed it, with directly contrasting findings. However Ng et al.'s (2007) discussion cites the findings of Spence and Robins (1992) as work enjoyment being a facet of workaholism, whilst eluding the fact that Spence and Robins (1992) found both low work enjoyment and high work enjoyment to be related to the other facets of workaholism as two differing types of workaholics. Ng et al. (2007) use Spence and Robins (1992) as their key source for incorporating high work enjoyment within their definition of workaholism. McMillan (2002) on the other hand suggests that emotional drive and high work enjoyment are the key facets

of workaholism, whilst other researchers have in fact failed to replicate the findings of Spence and Robins (1992) particularly with respect to the directionality, or categorization of the relationship of work enjoyment with the other facets of workaholism. This was put down to a lack of validation of their scales before using methods of cluster analysis to draw out such categories (McMillan, 2002). The fact that Spence and Robin's (1992) findings haven't always been replicable, along with underlying addiction framework which relates to pleasure gratification, provides some support for Ng et al.'s (2007) decision to opt for high work enjoyment as a facet of workaholism.

The cognitive factor involves a cognitive obsession with work, whereby the individual thinks about work constantly. There is a general consensus, whether explicit, or implicit that there is an underlying cognitive obsession with work. Some definitions have been blatantly explicit (Scott et al., 1997), as is the current definition (Ng et al. (2007), whereas some have defined workaholism in such a way which implies an obsession with work, i.e. drive (Spence and Robins (1992)

Behavioural involvement is where the workaholic works long hours to the expense of his/her personal life, otherwise discussed as task involvement. Although Ng et al. (2007) present this definition as broken into the three factors of addiction (cognitive, behavioural, and affective), their discussion of affect clearly implies a 4-factor solution with affect broken into two distinct sub-factors (positive and negative). Looking at this model with respect to past models of workaholism, the key difference appears to be combination of all three aspects, i.e. affect, behaviour and cognition. The current model incorporates all aspects by which workaholism has been defined, in an attempt to combine them. Following the revised construct definition, Ng et al. (2007) put forward a comprehensive model of workaholism, its antecedents and consequences (shown in Figure 1). These are discussed in the following paragraphs.

## Antecedents

The model begins with dispositional and personality related antecedents. Self esteem has been defined as a good opinion of oneself (Burchfield, 1986). Poor self esteem has frequently been linked to workaholism. In recent discussion Robinson & Flowers (2004) suggests that workaholics use their work as an escape, in a way numbing the pain of low self esteem and emotional issues from their home life, often seeking self worth from their work. Hence, self esteem should link closely to affective factors of workaholism. Ng et al. (2007) discussed achievement oriented personality types as being an important predictor within the model, which was encompassed by Type A personality types within their discussion. Type A people are hard driving, persistent, and involved in their work, as well as having a sense of time urgency (Keenan, A., & Mcbain G., 1979 pg278). However Type A personality has received very little attention in recent years outside of clinical research, suggesting its relevance is somewhat questionable. Achievement related factors also encompassed values. This was a somewhat new addition to the workaholism literature whereby achievement related values should contribute to workaholic behaviour, which is an idea discussed in the values literature. According to Ng et al. (2007) Schwartz (1992) posed the idea that achievement values, consisting of success, capability, ambition and influence might contribute to workaholism. However further reading of Schwartz reveals that success ambition, capability and influence actually refers to self direction. Schwartz's (1992) definition of achievement values refers to achievement of competence according to social standards. The reasoning for Ng et al. (2007) to include achievement values within their model is based around the definition of success, ambition, capability and influence, therefore this is continued in the present study.

The social environment, both present and past, is expected to contribute substantially to the workaholic's behaviour. A stressful home life as a child is expected to contribute to forming the workaholic. Mathews and Haldman (1990) suggest that those with clinical issues at home as a child can opt for more stressful positions as an adult, based on the adaptability learned from the issues throughout childhood (Cited Ng Sorenson and Feldman, 2007). Competitiveness is also likely to have close links, however Ng et al. (2007) discuss peer competition as a product of vicarious learning within the workplace whereby workaholism spreads throughout the workplace. Thus climate may be more likely to be related to workaholism. Social learning theory would suggest that we learn through interactions with our social environment and it is therefore well known that we learn patterns of behaviour from our organisational environment, (Davis & Luthans, 1980; Maanen & Schein, 1979), so logically one's work environment is likely to be a strong influence on the development of workaholism (see Model 2). Johnstone & Johnston (2005) looked further into this idea and found work pressure as an aspect of climate to be significantly related to workaholism. Looking into the climate in further depth, climate has been defined as an individual's perception of what is considered important in their surrounding work environment. Work pressure is further defined as consisting of time pressure and high demands in terms of quantity of work, which has been said to relate to workaholism (Killinger, 1991; Johnston & Johnstone, 2004)

Relating back to Robinson's (2004) discussion of workaholism being a form of escape, high self efficacy is also considered to be a part of the model. Self efficacy can be defined as the belief regarding one's own ability to perform or exercise influence in a particular situation (Bandura, 1994). Therefore if an individual's self efficacy at work is particularly high, in contrast to a low self efficacy at home, then this can lead to the individual seeking out work to avoid situations at home where one's perceived influence is

somewhat reduced. The links from workaholism to self esteem and self efficacy look very similar, however the distinction is made in Ng et al.'s (2007) model.

The behavioural reinforcers for being a workaholic are also considered to be key antecedents. Behavioural psychology maintains that immediate reinforcement is required for behaviour to be repeated, let alone form an addiction (Skinner, 1972, cited Ng et al., 2007). Thus for the individual to become addicted to work, the behaviour must be duly reinforced. This requires an array of systems in place within an organisation, inclusive of pay, performance rewards and promotions, which are conducive to promoting workaholic behaviour.

### Consequences

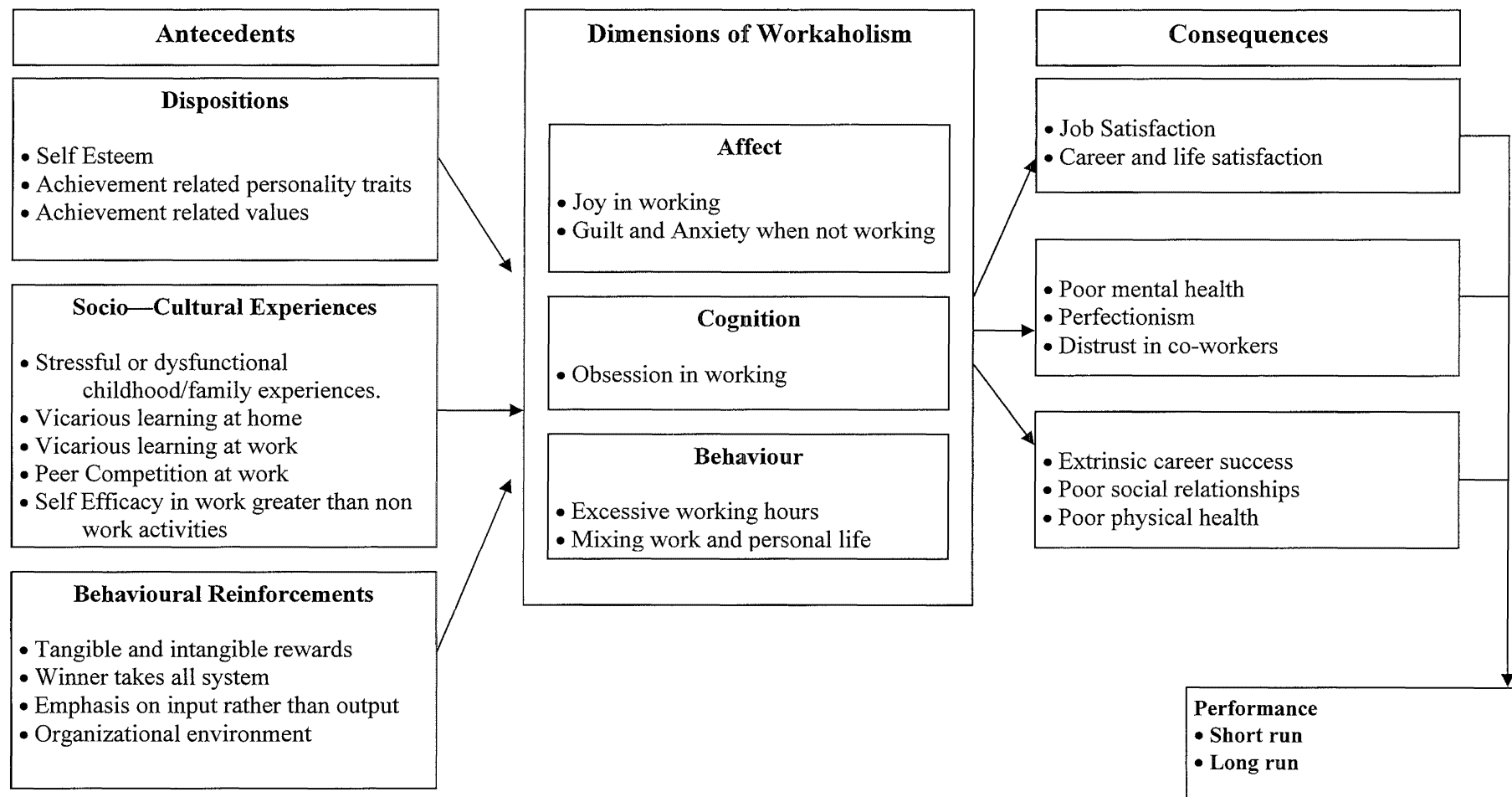
Job Satisfaction is a frequently visited topic with respect to workaholism. Spence and Robins (1994) found low work enjoyment; McMillan found high work enjoyment, whilst Scott et al. (1997) argued no relationship at all exists. Again to add to the diversity Robinson & Flowers (2004) offered the theory that workaholics exist as either hating their job or loving their job. This relationship seems to be dependant on the position of work enjoyment within the definition of workaholism in question. Due to the fact that Ng et al. (2007) have chosen the standpoint that high work enjoyment is a key factor, their model therefore shows a clear positive link to job satisfaction, which in turn links to life satisfaction (Burke, 2001a).

Poor mental health, more specifically anxiety and depression have been frequently discussed in relation to workaholism, especially from a clinical perspective (Killinger, 1990; Robinson, 1989; Morris & Churney, 1983). Ng et al. (2007) link mental health to one's obsession and perseveration with one's work. Other researchers have also suggested anxiety, stress and depression to be consequences of workaholism (Scott et al. 1997). Others have linked anxiety and depression to the workaholic being deprived of their work (Morris and

Cherney, 1983), which does coincide with Robinson & Flowers (2004), who suggest that workaholism is used as an escape from greater personal issues.

Perfectionism is also frequently linked to workaholism. Based on the drive to ensure one's work is perfect, in a circular pattern, the individual can then doubt their own performance, leading them to work even harder (Kessler and Blampied, 2002). Maintaining such high standards of work can lead the individual to not trust co-workers enough to delegate, rather doing the work themselves, again generating more workaholic behaviours.

Negative outcomes such as poor social relationships are also important to consider. If the individual expends all their energy at work, then little remains for pursuits outside of work, such as family and friends. There has been extensive discussion of the work family balance issues which arise from workaholism. Porter (2001) suggested that relationships with family and friends are disregarded in order to obtain satisfaction at work. Some of these related factors are also interrelated themselves, for example poor social relationships may contribute to mental health, and mental health may in turn contribute to poor social relationships. A depressed individual is less likely to have a wide circle of friends, while having no social support may depress the individual (Cappeliez & Flynn, 1993). Issues with work family balance are simply a logical deduction from the facts, whereby the individual who spends excessive hours working is unlikely to devote an appropriate level of attention to their family (Quick, 1999). On the lighter side some have argued the benefits of workaholism, particularly the extrinsic career success associated with working long hours. Although this may not be necessarily related to performance, Ng et al. (2005) found that working longer hours was rewarded, based on its ease of recognition rather than task performance.



**Figure 1.** Ng, Sorenson and Feldman's (2007) proposed model of workaholism



## **Present study**

The present study is intended to further the conceptual work of Ng, Sorenson and Feldman (2007) by testing empirically several main components of their model. Rationally combining prior empirical studies, in my view, is problematic because the research used 3 different scales, all of which approach the construct of workaholism from differing angles. So, the hypothesized links in the Ng et al. (2007) may not necessarily be correct and need to be empirically validated.

As the first step in testing the comprehensive model of workaholism, a measure of workaholism consistent with the proposed four-factor component structure was developed. The measure, a mix of borrowed and generated items, will be designed to differentiate between cognitive and behavioural involvement, as well as between positive affect whilst working and negative affect when not working. Next psychometric analyses of the measure to see if the proposed structure is empirically justified. The second step investigates the relationship between a total workaholism score and its component scores with antecedents and consequences presented in Figure 1. Due to the time and size limitations of the current study, not all of the relationships shown in Figure 1 could be included. Hence, Figure 2. presents constructs that were most frequently discussed in the literature and chosen for this study. Specifically I have included measures of Conscientiousness, Self Esteem, Achievement Related Values, Work Pressure, Competitiveness, Job Satisfaction, Mental Health and Work Family Balance.

For antecedents, the focus is on dispositional variables. The clinical research has focused on Type A personality dispositions, which isn't suitable for the present research design, thus a facet of the Big Five theory of personality. Conscientiousness is used to encompass achievement related dispositions and has been defined in Chernyshenko et al. (2005) as incorporating industriousness, order, self control, traditionalism, responsibility and

virtue. Roberts et al. (2005) validated a conscientiousness scale against a measure of work dedication, which shows the particular relevance for the present study. Industriousness was defined in Chernyshenko (2005) as being 'hardworking, ambitious, confident and resourceful' (cited Chernyshenko, 2005, pg 17). Based on this definition, industriousness is the achievement oriented facet of conscientiousness, and is therefore a logical point of progression. Based on the hardworking aspect of industriousness, it is expected to be positively related to workaholism, or more specifically behavioural involvement.

Hypothesis 1: Conscientiousness (Industriousness) will be positively related to workaholism

According to Rosenberg, (1965) and Brockner (1988 cited in Ng et al., 2007) self esteem is a dispositional factor relating to the degree to which the individual likes themselves. Based on Robinsons (2004) suggestions of the workaholic using work as a buffer, or escape from ones self esteem problems, poor self esteem is expected to result in higher workaholism levels.

Hypothesis 2: Self esteem will be negatively correlated with workaholism

Ng et al. (2007) extend on the idea of achievement related dispositions relating to workaholism by bringing values into the equation. They suggest that if achievement related dispositions relate to workaholism, therefore achievement values must also be related.

Hypothesis 3: Achievement related values will be positively related to workaholism

Work pressure was found to be significantly related to workaholism (Kessler & Blampied, 2003). Work pressure has also been linked to the drive aspect of workaholism, whereby constant work pressure leads the individual to experience guilt and anxiety whilst away from work.

Hypothesis 4: Work pressure will be positively related to workaholism

Competitiveness has also been linked to workaholism. Several discussions have suggested those of a competitive nature will be likely to become workaholics (Furnham, 2005). Ng et al.

(2007) brought into this discussion the competitiveness amongst co-workers as an environmental factor. However the latter may relate more closely to work climate rather than individual competitiveness.

Hypothesis 5: Competitiveness will be positively related to workaholism

On the consequence side of the model, I have selected measures of job satisfaction, mental health and work family balance. Having included a facet of work enjoyment Ng et al. (2007) therefore expect workaholism to positively relate to job satisfaction. On the basis that the present study is expecting to find work enjoyment to be positively related to other facets of workaholism a positive relationship between workaholism and job satisfaction is anticipated.

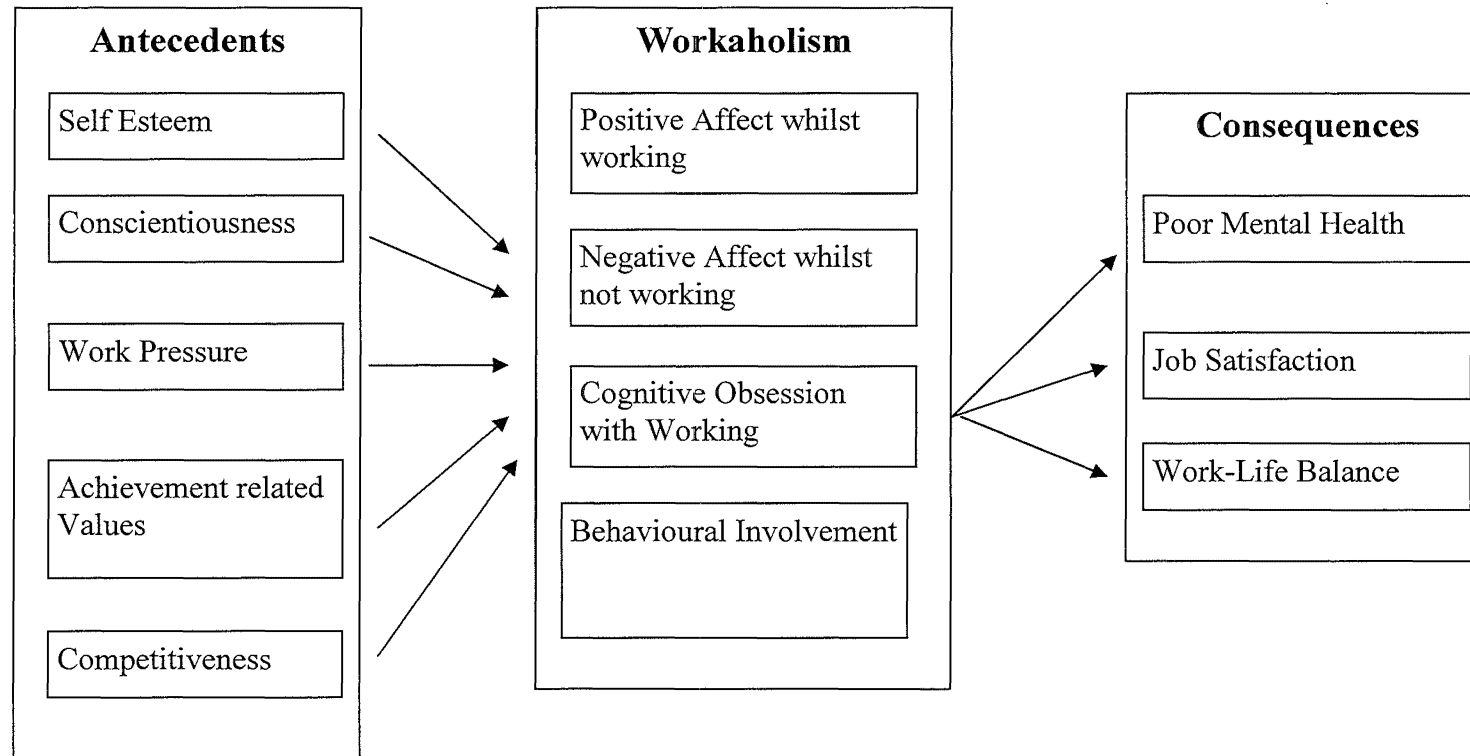
Hypothesis 6: Job Satisfaction will be related positively to workaholism

Poor mental health is thought to be a key consequence of workaholism. For example, research has found relationships between workaholism and anxiety, depression and stress (Haymon, 1993, cited Robinson and Flowers, 2004; Spence & Robins, 1992).

Hypothesis 7: Mental health will be negatively related to workaholism

Finally, assumptions are frequently made in the literature that workaholism by definition has a negative effect on the family life of those affected Fassel, 1990; Robinson and Flowers, 2004). Although data from McMillan, (2004) would suggest otherwise, McMillan (2002; 2004) defined workaholism to consisting of only work enjoyment and drive whereas the current definition does in fact include facets of cognitive and behavioural involvement, which is substantially more likely to influence one's work family balance. Therefore work family balance is expected to relate to workaholism, more specifically cognitive and behavioural involvement.

Hypothesis 8: Poor Work Family Balance will be negatively related to workaholism



**Figure 2.** Present study; workaholism, its antecedents and consequences

## **Method**

### **Sample and Procedure**

The first aim of this study was to develop a multifaceted measure of workaholism based on Ng et al.'s (2007) 4-faceted definition of workaholism (shown in Figure 2), I wrote and assembled a pool of 31 items. With the assistance of two colleagues I wrote the items for three of the four facets: negative affect away from work, cognitive obsession with work, and behavioural outcomes of workaholism.. Positive affect whilst working was measured using an existing 7 item scale by McMillan et al. (2003). Each specific facet, examples of items, and resulting scale properties are discussed in detail below.

The second aim of the study was to investigate some of the links proposed by Ng et al. (2007) between the newly defined workaholism construct and its antecedents and consequences. To do that, I have selected 8 scales from the existing literature intended to measure the links illustrated in Figure 2. Inclusive of the workaholism items and the eight existing scales, there is a total of 143 items. In addition to these items, basic demographics which included age, gender, industry, hours worked and tenure were also included. The above items formed the survey which this study utilized. The survey was initially intended to be distributed across various professions including medical professionals, lawyers, accountants as well as academics. However surveys were distributed to engineers, as well as general business professionals in order to provide enough data. These occupations were targeted on the basis of their capability to consume the individual for more than their regular working hours. The survey was distributed to businesses whereby the receiving staff member was asked to disperse the surveys amongst professionals and salaried roles.

As an incentive to participate, a chance to win one of three \$100 vouchers was offered. However this was an anonymous survey, so in order to award prizes, details had to be collected. The bottom portion of the cover page was a detachable slip where the person's contact details were filled in. The cover page also included a brief statement explaining what the study is about and what was required from the participant.

200 surveys were distributed with 107 returned, at a 53% response rate. The age of the participants varied substantially. 13% were under 25, 25% were 26 to 35, 20% were 36 to 45, 31% were 46 to 55, and 11% were 55 or older. 66% of the respondents were female. The respondent's industries also were varied. 15% were in consulting, 18% were in the medical industry, either doctors or nurses. 3% were in finance and accounting, 4% were research, 18% were lawyers, and lastly 43% specified their industry as other. This will have encompassed the engineers, as well as self employed respondents and others occupations not covered within the 5 categories. All of the responses for the following measures were assessed on a four point scale where

1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree.

## **Measures**

### Workaholism

Positive affect/work enjoyment facet. The positive affect whilst working factor of workaholism was measured by Macmillan (2003) whereby they adapted a measure of work enjoyment from Spence and Robins (1994). This is a 7 item measure. McMillan (2003) found internal reliability of .85. The scale contains items such as 'Most of the time my work is very pleasurable' and 'I enjoy my time off' (R).

Negative affect. This scale is a measure of negative affect whilst away from work. This included feelings of guilt, anxiety and worry whilst not working. There are 9 items in the scale administered. This contains items such as 'I feel guilty when I'm not working' and 'I'm happy to get back to work (R)'. I designed most of the items with colleagues suggesting four of the eleven items.

Cognitive obsession facet. This is a measure of one's cognitive obsession with work. This scale has 11 items, most of which I designed. Four of the items were designed with the assistance of two colleagues. This scale contains items such as 'I can't stop thinking about work' and 'Whilst socialising with friends I often think I'd rather be at work'.

Behavioural involvement facet. This is a measure of the actual behavioural involvement of workaholism, containing 11 items. These include items like 'I work whenever I get a chance' and 'I put in more hours than a lot of people I know'. These were also designed with some assistance from the two colleagues.

### Antecedents

Achievement Values. Achievement values were measured using three scales from the Work Values Inventory (WVI), (Super, D. E., 1970). The inventory consists of fifteen three- item scales, with a total of 45 items. Three scales were used: achievement, economic return, and way of life. These scales included items such as 'Can see the results of my efforts', 'Can get a raise', and 'Lead the kind of life I most enjoy'. These scales have shown good reliability in the past with test retest correlations of .83, .88, and .8 respectively.

Conscientiousness. The measure of conscientiousness was sourced from Chernyshenko (2003) and is a measure of the facet industriousness. The scale consisted of ten items,

such as 'getting average grades is enough for me (R)' and 'I go above and beyond of what is required'. In the present study this scale had a Cronbach's alpha of .86.

Rosenberg self esteem scale. Self esteem has been measured with the Rosenberg Self Esteem measure (Rosenberg, 1965). This is a ten item scale consisting of items such as 'All in all I am satisfied with myself' and 'I wish I could have more self respect for myself'. The present study showed a Cronbach's alpha of .88.

Competitiveness scale. Items to assess competitiveness were sourced from a 20 item index (Housten & Smither, 1992). The six items were picked based on their orientation of competing with one's peers. These included 'I dread competing with others and 'I had to be the best at school'. The present study found a Cronbach's alpha of .78.

Work Pressure. The measure of work pressure was lifted from the Work Environment Scale (WES) which is a 90 item scale with ten nine item factors. Work pressure is one of these factors. The factor includes items such as 'It's very hard to keep up with your workload' and 'Nobody works too hard'. The scale has an average internal reliability of .79, with the present study also having a Cronbach's alpha of .79.

## Consequences

Job satisfaction scale. Job satisfaction was measured with a scale drawn from the Illinois Job Satisfaction Index (Chernyshenko, Stark, Crede, Wadlington, & Lee 2003). There were 10 items on the scale, which included items such as 'My work is meaningful' and 'I don't like my work'. Employees were asked to rate how much they agreed or disagreed with each statement. The present study had a Cronbach's alpha of .77.

Work Family Balance. The Work Family Balance measure is a 10 item measure (Netemeyer, R. G., Boles, J. S., & McMurrian, R. (1996). The measure contains two



subscales; work interference with family, and family inference with work. These contain items such as 'The demands of my work interfere with my family life' and 'Family related strain interferes with my ability to perform job related duties'. Internal reliabilities of these two scales range from .88 to .89. The present study showed a Cronbach's alpha of .92 for the scales combined into one.

Depression Anxiety and Stress Scale (DASS). Mental wellbeing was assessed using the Depression, Anxiety and Stress Scale (DASS). This is a 45 item measure with three scales, assessing depression, anxiety, and stress. Crawford, J. R., & Henry J. D. (2003) found these scales to have high internal reliabilities of .91, .84, and .9. The depression scale has items like 'I felt sad and depressed'. The anxiety scale has items like 'I felt I was using up a lot of nervous energy' whilst the stress scale included items like 'I tended to over react to situations'. The present study found an overall Cronbach's alpha of .95 for a composite of the three factors.

## **Results**

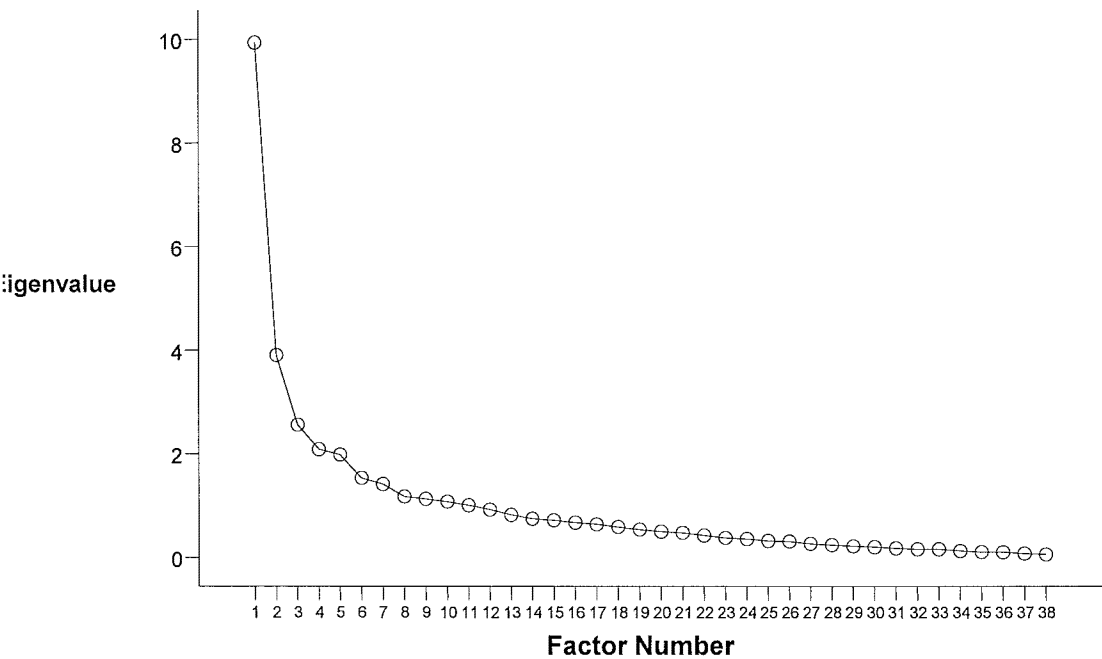
### **Workaholism Scale Design**

Descriptive statistics were calculated for all items within the survey. These were checked for errors. Methods of factor analysis were then used to establish the factor structure of the workaholism measure. Following the outcome of the factor analysis, four scales were designed, and subsequently correlated and modelled with the antecedents and consequences.

The following exploratory factor analyses used principal axis factoring with direct oblimin rotation. An initial analysis was run, where the minimum eigenvalue cut off was set to 1, and a scree plot was generated. The scree plot, shown in Figure 3 indicated a possible 2, 3 or 5 factor solution. A four factor solution was expected; therefore 4 factors were also extracted. The 3, 4, and 5 factor solution all had a small uninterpretable factor as the last factor in each solution. Having dropped the items for this poorly defined factor, the five factor solution became a four factor solution clearly showing the expected factor structure.

As the first two factors in the scree plot in Figure 3 showed the clearest distinction, the 2-factor solution was extracted first. The solution extracted consisted of work involvement and work enjoyment. The first, work involvement, absorbed all of the cognitive obsession items, all of the behavioural involvement items, as well as four of the negative affect items. These negative affect items related to guilt and anxiety whilst away from work. They included items such as: 'I am often anxious about work related issues' and 'I feel guilty whilst not working'. The work enjoyment scale absorbed all but one of the items from McMillan's scale, and an additional 3 items from the negative affect scale. Three items, one from McMillan's scale, 'I seldom find anything to enjoy

about my work’ and two from the negative affect scale, I enjoy my time off, and ‘I feel a sense of relief at the end of my day at work’, were dropped due to factor loadings below .3. The negative affect factor which appeared as expected in the four factor solution is absorbed almost evenly across both work involvement and work enjoyment.



**Figure 3.** Scree plot of initial EFA

Table 1 shows the final 4 factor solution. This factor structure has emerged as expected from Ng et al.’s (2007) conceptual model. Within the text and the following tables ‘R’ refers to negative items which have been reversed. Factor 1 shows the cognitive obsession with work. There were 16 items in the first factor. This factor contains items such as ‘I spend a lot of my spare time thinking about work’ and ‘I wake up thinking about work’. The majority of these 16 items are cognitively based. Factor 2 shows the behavioural involvement factor, which contains 6 items, all of which are behaviourally based. These include ‘Work takes up most of my time’ and ‘I work longer hours than I am required to by my organisation’. Factor 3, labelled work enjoyment, has

7 items. These items relate to finding pleasure in working. This includes items such as ‘My job is more like fun than work’ and ‘Most of the time my work is very pleasurable’. Factor 4 shows negative affect whilst away from work and is made up of 6 items. The negative affect factor relates to a preference for work rather than life outside of work. This contains ‘I prefer to be working’ and ‘I enjoy my time off R’.

**Table 1.** Four factor pattern matrix.

	Cognitive Obsession	Behavioural Involvement	Work Enjoyment	Negative Affect
I spend a lot of my spare time thinking about work	0.70	0.23	0.23	0.25
I often find myself distracted from leisure or household activities by thoughts of work.	0.69	0.38	0.20	0.01
Work thoughts distract me from my personal life	0.64	0.35	0.13	0.21
I think about work all the time	0.63	0.26	0.03	0.32
When I'm not at work I hardly ever think about it (R)	0.62	0.02	-0.06	0.15
I take work home most evenings and weekends	0.57	0.40	0.13	0.15
I cant stop thinking about work	0.56	0.32	0.04	0.01
I wake up thinking about work	0.54	0.15	-0.02	0.02
I don't think about work at all once the day is done (R)	0.53	0.01	-0.07	0.04
I leave my work at work (R)	0.51	0.17	0.02	0.22
Whilst socialising with friends I often think I'd rather be at work	0.50	0.16	0.39	-0.18
Sometimes I find it hard to pay attention at social events because I am thinking about work.	0.49	0.47	0.28	-0.09
I worry about work a lot	0.43	0.20	-0.09	0.41
I'm often anxious about work related issues	0.28	0.16	-0.16	0.27
My loved ones are bothered by the amount of time I spend at work.	0.17	0.75	0.05	0.15
Work takes up most of my time	0.29	0.67	-0.03	0.09
I work over 50 hours a week most weeks	0.40	0.67	-0.12	0.07
My family feels neglected by the amount of time I spend at work	0.19	0.63	0.16	0.20
I put in more hours at work than a lot of people I know.	0.24	0.62	0.03	0.20
I often work longer hours than I am required to by my organisation	0.15	0.42	0.09	0.32
My job is more like fun than work	-0.12	0.12	0.82	0.02

My job is so interesting that it often doesn't seem like work	-0.02	0.15	0.78	0.04
Sometimes when I get up in the morning I can hardly wait to get to work	0.22	0.02	0.55	0.22
Most of the time my work is very pleasurable	0.09	-0.17	0.55	0.03
I'm happy to get back to work	0.20	-0.11	0.51	0.38
I do more work than is expected of me strictly for the fun of it	-0.08	0.03	0.42	0.41
I like my work more than most people do	-0.04	0.10	0.34	0.08
I feel guilty when I'm not working	0.10	0.29	0.03	0.64
I sometimes feel uneasy when I'm not at work	0.18	0.22	0.13	0.61
I feel happiest when working	0.25	0.07	0.45	0.52
I prefer to be working	0.05	0.05	0.38	0.51
I work whenever I get a chance	0.37	0.30	0.16	0.45
I enjoy my time off R	0.03	0.03	0.06	0.34

Because the aim of this paper was to investigate whether Ng et al.'s (2007) model is empirically justifiable, the 4-factor solution was retained. Classical test theory methods were then used to create four workaholism scales having a similar number of items (5-6), so the scale could be easily administered in the future studies and the overall workaholism scores computed without complicated weighting procedures. The design of the four scales is elucidated in the following discussion.

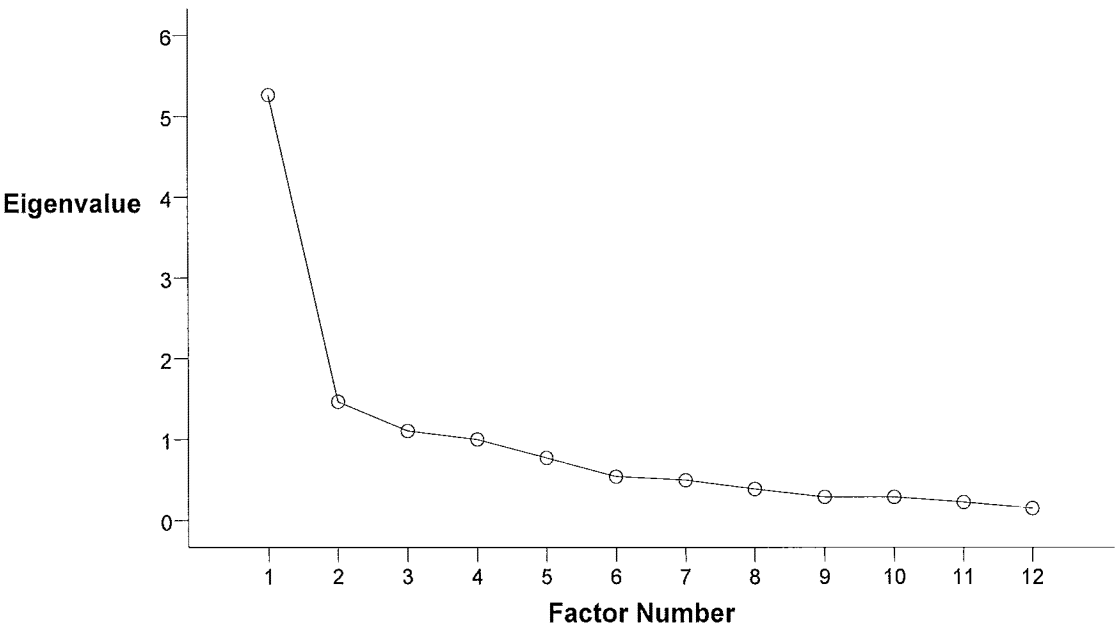
Scale 1. Cognitive Obsession

This scale absorbed four other items that did not specifically measure cognition. A single factor EFA was run. This allows the communalities to be checked and unidimensionality to be confirmed. For unidimensionality to be clear the eigenvalue ratio between the factor extracted, and the next possible factor within those items must be around 4:1. The cognitive factor had a ratio of 3.7:1. This can be seen in the Figure 4 scree plot. The next step of the scale design was reliability analysis. The initially high alpha of .88 was indicative of overlap between items. If two items which correlated above .7, the lower of the two in the factor order was dropped from further analysis.

This also served to decrease the number of items in the scale. The reliability of the final scale was .83. Table 2 shows the item statistics of the final 6 items in the cognitive obsession scale. ‘I think about work all the time’ and ‘Work thoughts distract me from my personal life’ were both removed from further analysis.

**Table 2.** Cognitive obsession item statistics.

	Mean	SD	Item Total	CITC
I spend a lot of my spare time thinking about work	2.20	0.76	235	0.63
When I'm not at work I hardly ever think about it (R)	2.53	0.69	271	0.60
I take work home most evenings and weekends	1.92	0.84	204	0.62
I cant stop thinking about work	1.82	0.67	195	0.43
I don't think about work at all once the day is done (R)	2.91	0.64	311	0.51
I leave my work at work	2.36	0.89	252	0.63

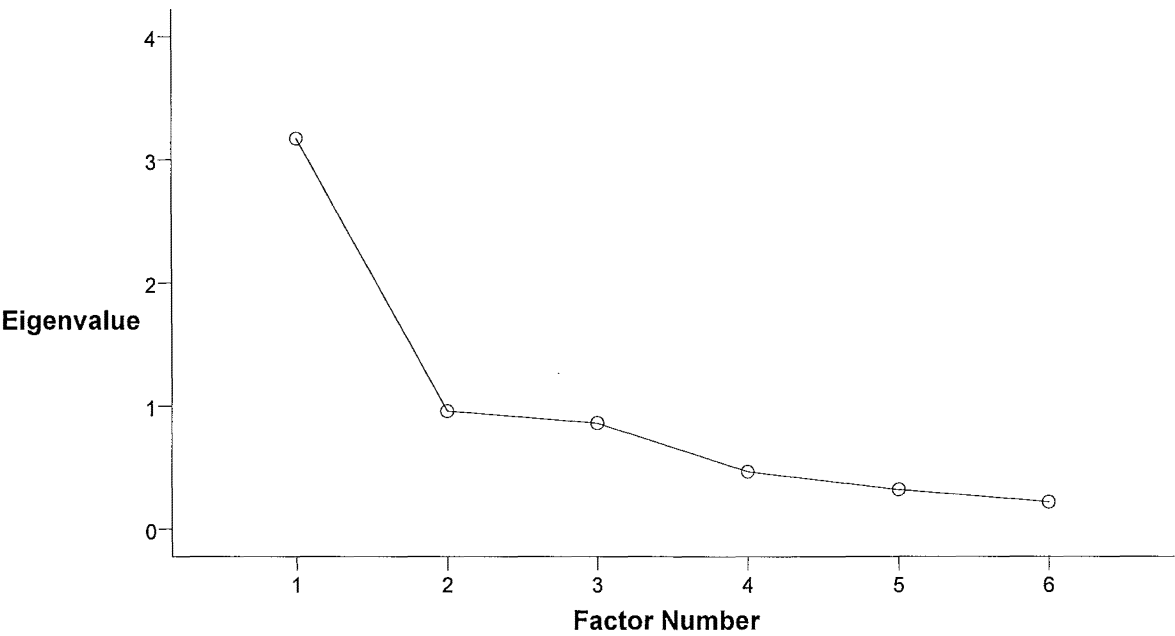


**Figure 4.** Scree plot showing eigenvalue ratio of cognitive obsession scale

Scale 2. Behavioural Involvement.

This scale was made up of six behaviourally oriented items. A single factor EFA was run. There were no low communalities and the eigenvalue ratio was 3.2:1. This is

shown in the scree plot in Figure 5. The scale had a reliability of .79, with no problems of item total correlations. Item statistics are shown in Table 3.



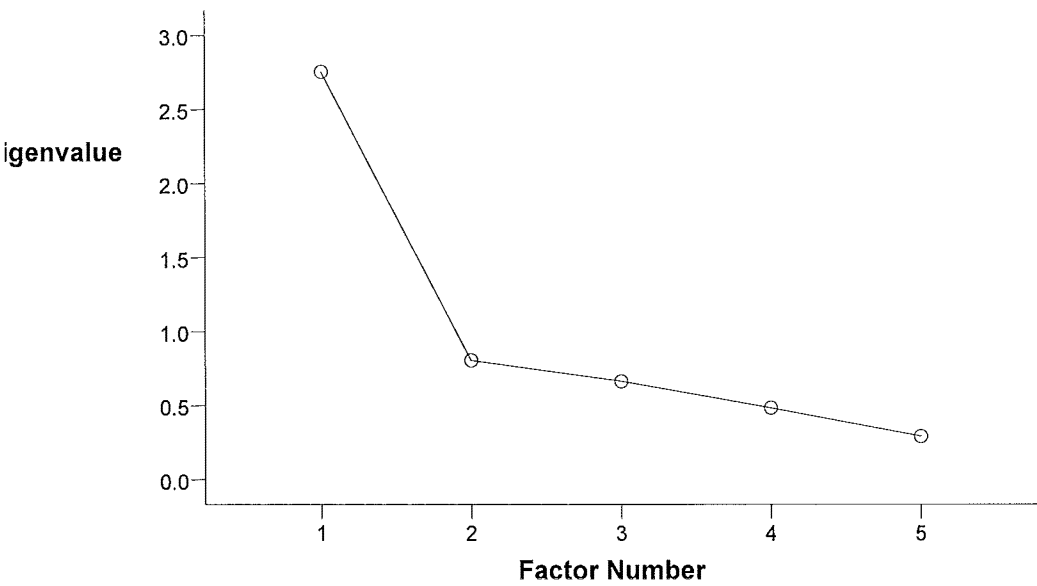
**Figure 5.** Scree plot showing eigenvalue ratio of the behavioural involvement scale

**Table 3.** Item statistics for behavioural involvement scale

	Mean	SD	Item total	CITC
My loved ones are bothered by the amount of time I spend at work.	1.98	0.79	212	0.66
Work takes up most of my time	2.23	0.90	239	0.62
I work over 50 hours a week most weeks	1.94	1.34	208	0.49
My family feels neglected by the amount of time I spend at work	1.81	0.66	194	0.55
I put in more hours at work than a lot of people I know.	2.26	0.85	242	0.62
I often work longer hours than I am required to by my organisation	2.31	0.87	247	0.51

Scale 3. Work Enjoyment.

Work enjoyment also consisted of five items. The single factor EFA showed an eigenvalue ratio of 3.3:1, which is shown in Figure 6. The scale had a reliability of .79 and all of the items had acceptable CITC's. Table 4 includes the item content and statistics.



**Figure 6.** Scree plot showing eigenvalue ratio of the work enjoyment scale

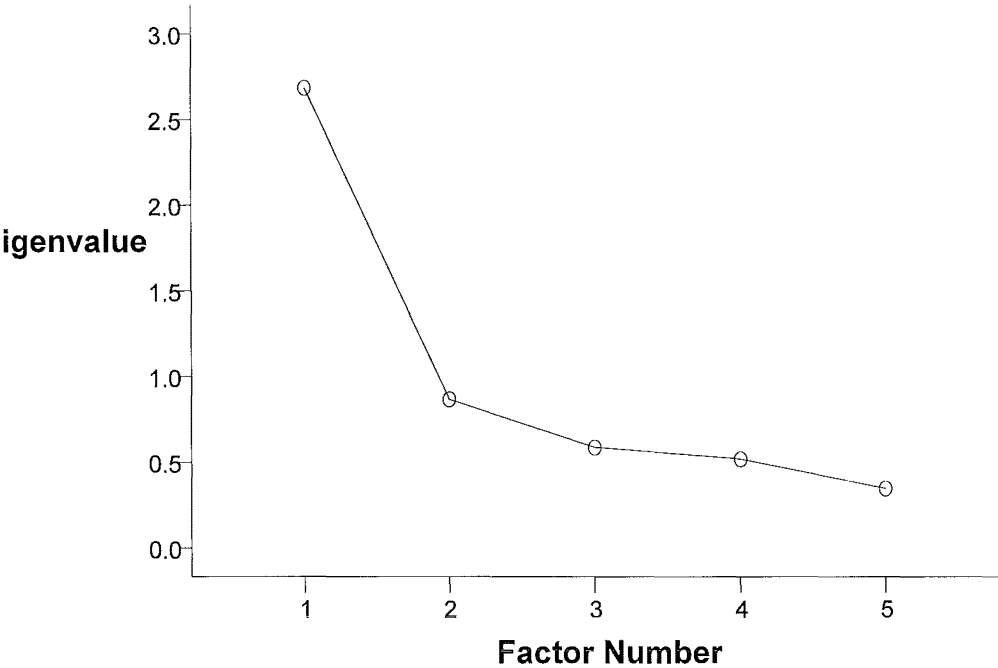
**Table 4.** Item statistics for work enjoyment scale

	Mean	SD	Item total	CITC
My job is more like fun than work	2.32	0.69	248	0.66
My job is so interesting that it often doesn't seem like work	2.67	0.73	283	0.67
Sometimes when I get up in the morning I can hardly wait to get to work	2.21	0.67	236	0.57
Most of the time my work is very pleasurable	2.91	0.52	311	0.49
I'm happy to get back to work	2.61	0.64	279	0.50



Scale 4 Negative affect whilst away from work

The negative affect factor initially consisted of 8 items. Three items were dropped due to poor communalities. ‘I enjoy my time off R’ ‘I can’t wait to get back to work’ and ‘I like my work more than most people do’. This left a five item scale. The single factor EFA showed an eigenvalue ratio of 2.99:1, shown in Figure 7. The scale had an alpha of .77. Table 5 shows the content and statistics of the items.



**Figure 7.** Scree plot showing eigenvalue ratio of the negative affect scale

**Table 5.** Item statistics for the negative affect scale

	Mean	SD	Item total	CITC
I feel guilty when I’m not working.	2.36	0.88	252	0.54
I sometimes feel uneasy when I'm not at work.	2.02	0.75	216	0.62
I feel happiest when working.	2.08	0.62	223	0.61
I prefer to be working	2.24	0.78	240	0.47
I work whenever I get a chance	1.93	0.69	205	0.55

A finalized four factor structure of workaholism was further analysed. The outcome was four 5-6 item scales. The scales were labelled Cognitive obsession, Behavioural involvement, Work enjoyment and Negative affect whilst away from work. This follows the structure of workaholism as expected in both the present study and Ng et al. (2007).

### **Modelling the Antecedents and Consequences of Workaholism**

The four facet scales of workaholism were added together to form a total score. This was then correlated with the four subscales of workaholism and the proposed antecedents and consequences (eight variables presented in Figure 2). The relationships between the facets can also be seen in Table 6. The cognitive factor correlated significantly with the total measure (.69), the behavioural facet (.57), and the negative affect facet (.41). The behavioural facet correlated significantly with the total measure (.78) and negative affect (.41). Work enjoyment correlated significantly with the total measure (.57) as well as negative affect (.38). The negative affect correlated significantly with the total measure (.57). The above is consistent with McMillan (2002) who found work enjoyment not to correlate significantly with involvement. However the significant correlations of work enjoyment with both the total measure, and negative affect shows an empirical association between work enjoyment workaholism.

Having found the expected factor structure, the support, or lack of, for the hypothesised relationships with the antecedents and consequences of the present study are discussed in the following sections. The correlation table, Figure 6, shows the relationships between the total, as well as each facet with the proposed antecedents and consequences. Conscientiousness was proposed to be positively related to workaholism. Conscientiousness correlated significantly with the total measure (.3), the cognitive scale (.24), the behavioural scale (.35) and work enjoyment (.19) which provided initial support for hypothesis 1, that conscientiousness would be positively related to

workaholism. Although this was a proposition of the present study, these results are not entirely surprising as work dedication has been used in the validation of a conscientiousness measure (Roberts et al., 2005).

Self esteem was significantly negatively correlated with the cognitive facet of workaholism (-.24), however self esteem did not correlate with the total measure or the other facets. Thus, hypothesis 2, which proposed that self esteem would be negatively related to workaholism, was not supported. Ng et al. (2007) discussed the link from self esteem to workaholism as based on using work as an escape from personal issues. This concept is supported by the significant correlation from self esteem to behavioural involvement.

Achievement values showed no significant correlations with workaholism or any factor of workaholism. This is thought to be related to the confusion in Ng et al.'s (2007) discussion regarding the definition which was discussed. Hypothesis 3, which proposed that achievement values would be positively related to workaholism, was not supported.

Work pressure correlated significantly with the total measure (.39), the cognitive aspect (.28), the behavioural aspect (.51) and the negative affect factor (.25). Thus hypothesis 4, which proposed that work pressure would be positively related to workaholism was supported. This relationship was expected as Johnston and Johnstone (2005) found that a pressured work climate to contribute significantly to workaholism.

Competitiveness did not correlate significantly with the total measure or any of the facets of workaholism. As discussed elsewhere in the present study, Ng et al. (2007) suggested a competitive work environment, whereas the present study tested competitiveness at the individual level. Hypothesis 5, which proposed that workaholism would be positively related competitiveness, was not supported.

Moving on to the consequences of workaholism, mental health, job satisfaction and work family balance all correlated to the total measure. Mental health correlated .21 with the total measure, .25 with the cognitive aspect and .21 with the negative affect factor. Thus, hypothesis 6, which proposed that mental health was positively related to workaholism, was supported. This coincides with much of the early research, in which the clinical outcomes, i.e. mental health, were the key focus of study (Fassel, 1990; Marchowitz, 1980).

Job satisfaction correlated .29 with the total factor and .56 with work enjoyment. In definitional terms job satisfaction and work enjoyment are very close, thus the correlations supporting hypothesis 7 were expected, particularly at the facet level.

Work Family Balance correlated .41 with the total measure of workaholism, .35 with the cognitive factor, .47 with the behavioural factor and .27 with the negative affect factor. Although Ng et al. (2007) did not touch on work family balance, Bonebright et al. (2000) found similar results. Hypothesis 8, which proposed that work family balance would be positively related to workaholism, was supported.

Having discussed correlational support, or lack of it for the hypotheses of the present study, Path Modelling techniques were used to test the abbreviated version of the Ng et al. (2007) model shown in Figure 2. According to Ng et al. (2007) the antecedents would be directly linked to workaholism, which would be directly linked to the consequences. This model, however, did not fit the data, as both the goodness of fit index (GFI) and the normed fit index (NFI) were less than .9. According to Byrne (2001) both GFIs and NFIs close to one, specifically above .9 represent a fairly good fit of the model. Meanwhile the root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR) were greater than .1. Values greater than .08 are indicative of errors of approximation in the population (Byrne, 2001). All

four indices were outside of these recommended values for good model-data fit. While some of the antecedent links were in the expected direction with both conscientiousness and work pressure both showing significant links, whilst the expected links from achievement values, competitiveness and self esteem were non-significant (see Figure 7). The links from workaholism to mental health, job satisfaction and work family balance were all significant. More importantly, examination of modification indices provided with the program output revealed that the model was grossly misspecified with regard to some links between antecedents and outcomes. This is not particularly surprising, given that Ng et al. (2007) essentially ignored the large body of research literature on job satisfaction or work-family balance. This knowledge of the relationship of job satisfaction with dispositional and work related factors, (Crede et al., 2007) along with the knowledge of mental health and work family balance, both also naturally occurring phenomena would suggest that direct links from some antecedents to the consequences within the model were required. Based on this, I revised the initial model to include both links to workaholism as well as some direct links from self esteem and work pressure across to the job satisfaction, work family balance and mental health, shown in Figure 8. Also included are the links between outcomes, such as direct paths from job satisfaction to work-family balance and mental health. This revised model fitted with a GFI of .96, and a NFI of .9. The RMSEA was .071 and the SRMR was .055. All of these figures indicate good model-data fit of the model. Figure 8 shows the path model fitted.

The path is testing workaholism as a mediator between the predictors and outcomes of the model. Conscientiousness showed a .32 directional link to workaholism within the SEM model, shown in Figure 8. This relationship was a proposition of the present study based on the definition of industriousness, pertaining to working hard

(Chernyshenko et al., 2007) This relationship showed additional support for Hypothesis 1 in the present study, which proposed that conscientiousness would be positively related to workaholism.

Self esteem did not show a significant link to workaholism in the SEM model with a relationship of  $-.14$ . Self esteem did however link significantly with mental health at  $.39$  and job satisfaction at  $-.43$ . The strength of these direct relationships across the model, compared to the minimal relationship via workaholism indicates that workaholism does not function as any kind of partial mediator from self esteem to both mental health and job satisfaction. The frequent discussion predominantly theoretically or clinically based, that workaholism functions as an escape from the individual's personal problems (Robinson & Flowers, 2004; Killinger, 1991), has gained no support in the present study. These findings provide additional evidence against Hypothesis 2, therefore self esteem was not negatively related to workaholism.

Achievement values were dropped from the path model analyses as there was no relationship between achievement values and any of the endogenous variables. In addition to this, correlation analyses showed that achievement values had no relationship with the total measure of workaholism or any of the facets. The only relationship shown was a significant correlation with conscientiousness, which is not surprising based on the fact that they both were categorised in Ng et al.'s (2007) discussion as achievement related dispositions. Based on this categorical similarity, it was expected in Hypothesis 3 that achievement values would be positively related to workaholism. This was not supported by the present findings.

Work pressure was significantly linked ( $.32$ ) to workaholism. This was a definitional relationship which was discussed in Ng et al. (2007), based on the theory of vicarious learning by which an individual learns behaviours from their social

environment (Ng et al., 2007). The present findings coincide with those of Johnston & Johnstone (2003), where work pressure as a facet of climate was found to be associated with Spence and Robins' (1992) measure of workaholism. The path model showed that work pressure had a significant direct link to workaholism, which provides further support for hypothesis 4, that workaholism would be significantly positively related to work pressure.

There was also significant links to both job satisfaction and work family balance. However these direct links were weaker than those via the workaholism at  $-.24$  and  $.19$  respectively. Jumping ahead of the discussion workaholism also linked significantly and positively to job satisfaction with a  $.42$  relationship, and work family balance at  $.45$ . This weaker link directly from work pressure to job satisfaction and work family balance compared to the stronger relationships via workaholism indicates that workaholism functions as a partial mediator between work pressure and both job satisfaction and work family balance.

Competitiveness was expected to be a predictor of workaholism as a result of the high work pressures, which was suggested to lead to higher levels of competitiveness. However the present study did not find this to translate into individual competitiveness. The relationship from competitiveness to workaholism was non significant at  $-.12$ . This provides further evidence against hypothesis 5, which proposed that competitiveness would relate positively to workaholism.

Looking at the proposed consequences of workaholism, there was an expected positive relationship with job satisfaction. This is an almost definitional relationship as work enjoyment is one of the key facets of workaholism. Although there has been ambivalence to the directionality of work enjoyment within workaholism, the present findings found work enjoyment to be positively related to the other aspects of

workaholism which translates directly to the expected positive link from workaholism to job satisfaction. Therefore hypothesis 6, which proposed that job satisfaction would be positively related to workaholism was supported by the present findings.

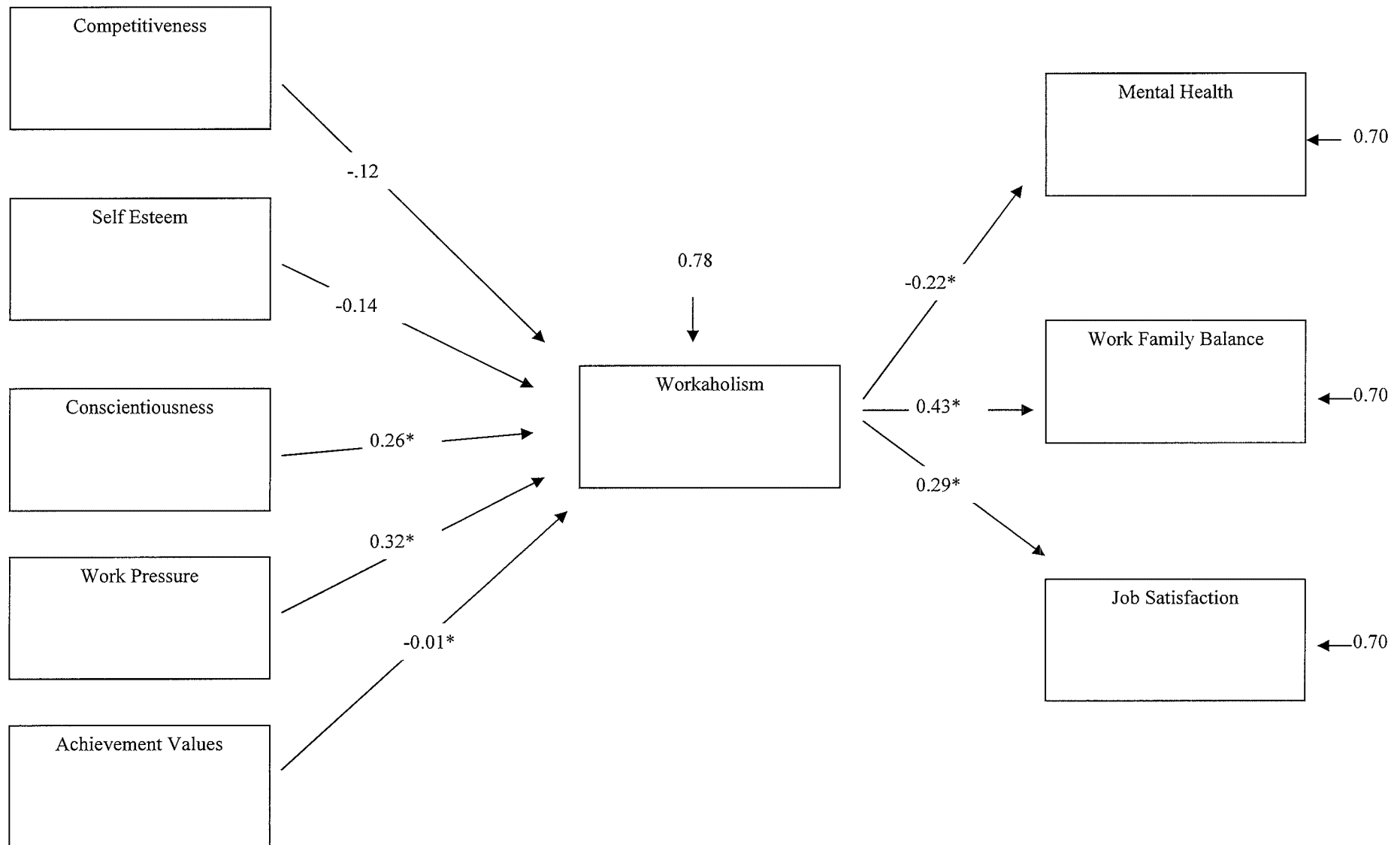
Mental health was found to be significantly related to workaholism, with a directional relationship from workaholism relationship of .32. As mentioned above, self esteem was also a predictor of mental health, whilst job satisfaction showed a directional link (.2) towards mental health. It was expected in Ng et al. (2007) that the lack of social relationships as an outcome of workaholism would contribute to poorer mental health. Although there was no direct link from work family balance to mental health, the link from workaholism does provide some support for this theory. Thus hypothesis 7, which proposed that mental health would be a consequence of workaholism, was further supported.

Lastly the SEM model found a significant directional relationship from workaholism to work family balance. This expected relationship was based on the behavioural aspect of workaholism, with the idea that an individual has only so many resources, thus when such a large extent of one's resources are devoted to work, family time becomes a lower priority (Ng et al., 2007). The hypothesis 8, which proposed that workaholism would be positively linked to work family balance, was further supported. Work family balance also showed a directional link towards job satisfaction. which relates back to Crede's et al. (2007) discussion of the influences of the one's social exchange frameworks on job satisfaction, whereby one's poor work family balance would influence one's perceptions of the job, thus incorporating work family into the nomological network surrounding job satisfaction.

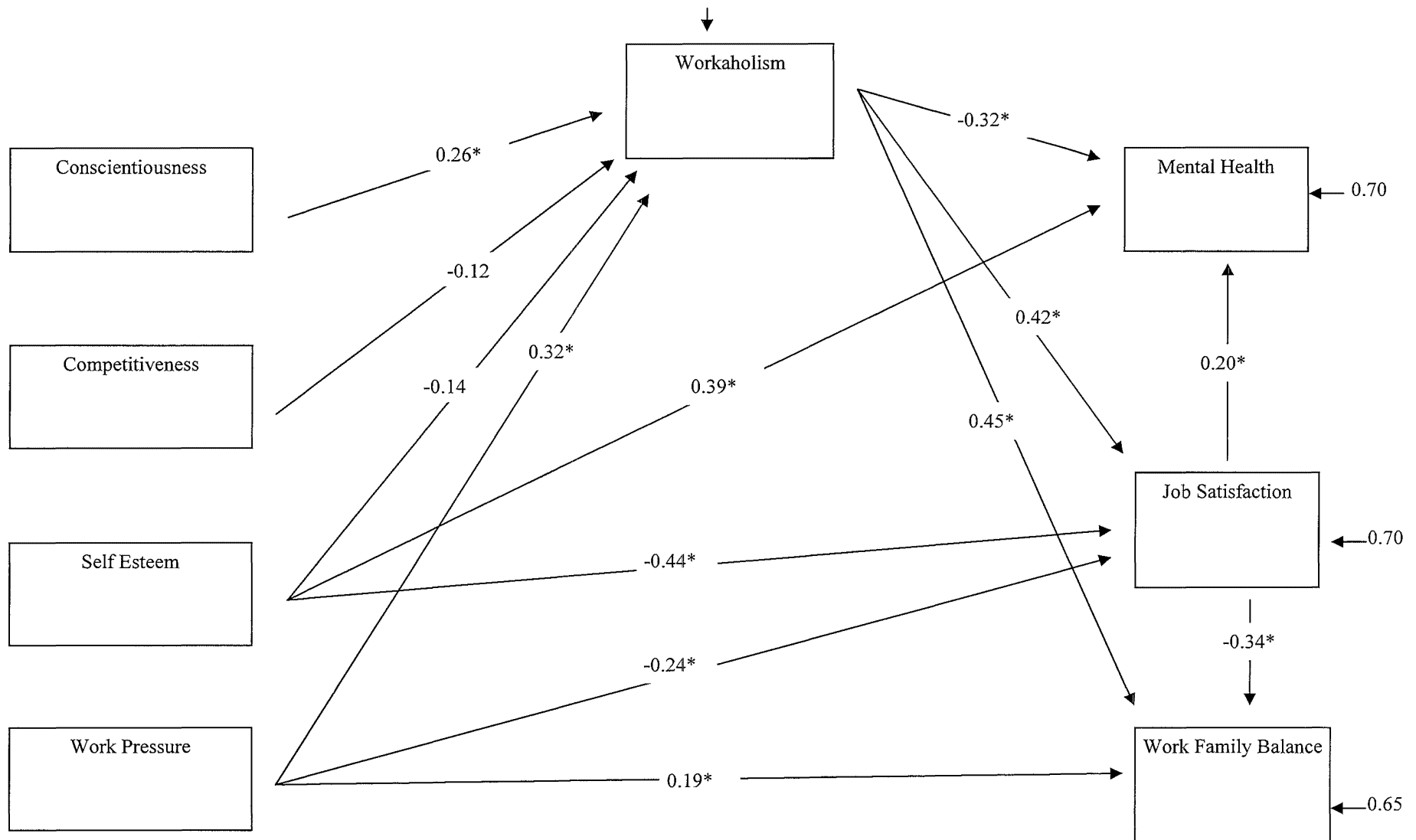


**Table 6.** Scale correlations of variables included in the initial path model

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Workaholism total	2.19	0.38	-												
2. Cognitive obsession	2.29	0.54	0.69	(.83)											
3. Behavioural involvement	2.09	0.65	0.78	0.57	(.79)										
4. Work enjoyment	2.54	0.48	0.57	0.17	0.12	(.79)									
5. Negative affect	2.13	0.54	0.77	0.41	0.42	0.38	(.77)								
6. Achievement Values	3.40	0.40	0.09	-0.01	0.05	0.03	0.17	(.77)							
7. Job Satisfaction	3.09	0.35	0.29	0.14	0.03	0.56	0.16	0.09	(.75)						
8. Work Pressure	2.64	0.52	0.39	0.28	0.51	-0.01	0.25	0.17	-0.05	(.79)					
9. Work Family Balance	1.89	0.50	0.41	0.35	0.47	0.07	0.27	-0.03	-0.22	0.38	(.92)				
10. Conscientiousness	3.14	0.44	0.3	0.24	0.35	0.19	0.12	0.35	0.28	0.38	0.0	(.86)			
11. Self Esteem	1.79	0.41	-0.09	-0.24	0.04	-0.11	0.15	-0.18	-0.38	-0.06	0.135	-0.29	(.88)		
12. Competitiveness	2.71	0.48	-0.01	-0.08	0.17	-0.09	-0.03	0.18	-0.1	0.21	0.05	0.36	-0.34	(.78)	
13. Mental Health	1.56	0.37	-0.21	-0.25	-0.16	0.03	-0.21	-0.08	0.28	0.17	-0.32	0.04	0.48	0.05	(.95)



**Figure 7.** Path coefficients for direct link model of workaholism as hypothesised.



**Figure 8.** Path coefficients for model of workaholism as a mediator

## **Discussion**

### **Workaholism Structure**

The present study makes two clear contributions to the literature. Firstly the initial aim to design and validate a four factor measure of workaholism based on Ng et al.'s (2007) model, was successful. The outcome being four scales, which are cognitive obsession, behavioural involvement, work enjoyment and negative affect whilst away from work. This measure is based upon the cognitive, behavioural and affect structure of addiction. The present study assumed that the four factors for which scales were designed would be empirically distinct. The present findings show an empirical distinction between the cognitive, behavioural and two emotional aspects, thus providing support for the primary expectations of both the present study as well as Ng et al.'s (2007).

There has been much ambivalence as to whether workaholism incorporates work enjoyment, and if so, does enjoyment positively or negatively relate to the other factors of workaholism? Bearing in mind the concept of addiction, the American Psychological Society has related impulse disorders to pleasure gratification in the immediate sense, therefore providing clear justification for the inclusion of work enjoyment within the expected structure. If it wasn't enjoyable, then the addiction would be unlikely to continue. The present study found work enjoyment to be empirically associated with workaholism. This supports the expectations of the present study and Ng et al. (2007) that workaholism fits within the applied framework of addiction.

### **Relationships**

The second contribution lies in the substantial amount of light shed on the influence or place of workaholism with respect to the antecedents and consequences tested in the present study. Two methods of analysis were used to examine the relationships around the newly designed

measure of workaholism. Correlation analysis and path analysis were both used to test the present study's hypotheses. However path analysis brought to light the seemingly obvious, yet completely ignored fact that workaholism's antecedents and consequences have direct links between them, regardless of whether workaholism is part of the equation. The model fitted showed workaholism's function as a partial mediator, whereby the relationship between work pressure and both work family balance and job satisfaction was partially mediated by workaholism. Crede et al. (2007) discusses the influence of objective and subjective job characteristics intertwining with the individual's attitudes and behaviours, in this case workaholism, to influence job satisfaction. Although this is discussed in a much more complex framework, its applicability in the present discussion is clear.

The relationship of conscientiousness to workaholism was a natural point of progression for the literature. Much of the early clinical literature has focused on relating Type A disposition to workaholism. By definition, industriousness as a facet of conscientiousness is closely related to work involvement, thus the positive correlation found with both work involvement and the total measure was as expected, coinciding with Roberts et al. (2005) using work dedication to validate a measure of conscientiousness.

Looking at other dispositional relationships found, the direct links from self esteem to both job satisfaction and mental health as seen in figure 8 show workaholism to have no mediating influence on this relationship. Individuals with a negative affect are suggested to be more likely to remember negative experiences (Necowitz and Rezonzki 1994, cited in Crede et al. 2007), thus such individuals would predominantly remember the negative aspects of their job, and would therefore be less satisfied. Other research has found strong relationships between self esteem and mental health (Taylor & Brown, 1988). Robinson & Flowers (2004) theorised a relationship between self esteem and workaholism on the basis

that workaholics would use their work as an escape from the inner issues, avoiding their poor self esteem by burying themselves in work. This clearly lacked support in the present study.

Of the five antecedents tested in the present study, two were found to be unrelated. Achievement values had a near zero correlation with the total measure and was dropped after the first path model due to a lack of relationships with any endogenous variables. Looking deeper into Ng et al.'s (2007) reasoning concerning achievement values, who defined achievement values as ambitious, successful, capable and influential, which in the values framework in question is proposed to be self direction, not achievement values (Schwartz, 1992). Achievement values have been defined as achievement of competence according to social standards (Schwartz, 1992). Further research could investigate further the relationship of achievement values with a more accurate measure of achievement values.

Competitiveness was also found to be unrelated to workaholism, showing a -.12 relationship in the model with workaholism. However the present study approached competitiveness from an individual level, whereas it was actually discussed in Ng et al. (2007) in reference to a competitive climate, which is more closely aligned with work pressure than with individual competitiveness. Thus the present findings do not shed much light on this relationship.

### **Limitations and Future Research**

There are several key limitations of the present study. Firstly, the nature of the research design is self report and there are inherent flaws in self report only design, as a person may describe their behaviour differently from their actual behaviour (Murphy & Davidshofer 2001). Some of the relationships within Ng et al. (2007) require further study. Whilst comparing definitions in Schwartz (1992), self direction values and achievement values had been confused in Ng et al. (2007), thus future research could bring in a measure of self direction values alongside the newly developed measure.

Ng et al. (2007) touched on the problem of cut off scores. The data in the present study can make no contribution here, as the variance of workaholism is normally distributed. This means that there isn't a large portion of workaholics, merely a normal population of individuals in high pressure environments, where extremely high scores in the workaholism scale would suggest workaholism. Although the efforts of the present research were aimed at having a large portion of workaholics, future research needs to target a more substantial portion of workaholics. Perhaps a portion of self confessed workaholics would serve to further validate the present scale.

### **Conclusions and Implications**

The present study found the four factor structure of workaholism as proposed by Ng et al. (2007). Conscientiousness was positively linked to workaholism, whilst workaholism partially mediated the relationship between work pressure and both job satisfaction and work family balance. This leads us to the implications of these findings on organisations. High pressure jobs are going to attract highly conscientious individuals, whilst organisations are also aiming to attract conscientious employees, as conscientiousness enhances performance Roberts et al. (2005). Therefore with organisations attracting conscientious individuals into high pressure positions, they need to be very aware of the risks. Longitudinal monitoring and research within the organisation would be required in order provide a safe environment for their employees

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## Appendices

### QUESTIONNAIRE

#### Work Dedication and Family Balance Survey

You are invited to participate in this research project looking at your dedication to work, and its influence on you, your family, and your work environment.

You will be asked to complete the following questionnaire, which should help us to shed some light on

- 1) why some people work harder than others, and
- 2) what benefits/drawbacks work dedication has on our lives.

Your participation is completely voluntary and anonymous. You can withdraw from completing the whole or part of the questionnaire at any time.

To provide some additional incentive for your participation, there are three (3) \$100 petrol/grocery vouchers to be won.

Note that this project is being carried out as part of a Masters in Applied Psychology by Gary Grace under the supervision of Oleksandr (Sasha) Chernyshenko. Should you have any concerns I can be contacted at [gmg37@student.canterbury.ac.nz](mailto:gmg37@student.canterbury.ac.nz) or I am available on 027 466 8260. I am happy to discuss any questions you may have.

Please fill in your first name and phone number, and sign and date the line below. Your details will be used solely for the \$100 prize draw.

I ..... Agree to participate in this study of work dedication

Signed.....

Date .....

Phone No. ....

Demographics

(please circle the appropriate text)

Age

Under 25

26 - 35

36 - 45

46 - 55

56 +

Gender

Male

Female

Industry

Consulting

Medical

Finance/  
Accounting

Research

Law

Other

Average weekly hours worked

Under 40

40 -50

50+

Tenure in Organisation

less than 1  
Year

1-3 years

4+ Years

Work Values

The statements below represent values which people consider important in their work. These are satisfactions which people often seek in their jobs or as a result of their jobs. They are not all considered equally important; some are very important to some people, but of little value to others. Read each statement carefully and indicate how important it is for you.

Please circle one response to each statement.

	Unimportant	Less Important	Important	Very Important
Know by the results when I've done a good job	1	2	3	4
Have pay increases that keep up with the cost of living	1	2	3	4
Get the feeling of having done a good days work	1	2	3	4
Can get a raise	1	2	3	4
See the results of my efforts	1	2	3	4
Am paid enough to live comfortably	1	2	3	4
Can be the kind of person I would like to be	1	2	3	4
Have a way of life, whilst not on the job, that I like	1	2	3	4
Lead the kind of life I most enjoy	1	2	3	4

**Work Enjoyment**

The following statements are about you. Rate them by the degree to which the statement applies to you.

Please circle one response to each statement.

	Strongly disagree	Disagree	Agree	Strongly agree
I feel guilty when I'm not working.	1	2	3	4
I worry about work a lot	1	2	3	4
I'm often anxious about work related issues	1	2	3	4
I enjoy my time off	1	2	3	4
I prefer to be working	1	2	3	4
I'm happy to get back to work	1	2	3	4
I feel a sense of relief at the end of my day at work	1	2	3	4
I sometimes feel uneasy when I'm not at work.	1	2	3	4
I feel happiest when working.	1	2	3	4
0. My job is so interesting that it often doesn't seem like work	1	2	3	4
1. My job is more like fun than work	1	2	3	4
2. Most of the time my work is very pleasurable	1	2	3	4
3. Sometimes when I get up in the morning I can hardly wait to get to work	1	2	3	4
4. I like my work more than most people do	1	2	3	4
5. I seldom find anything to enjoy about my work	1	2	3	4
6. I do more work than is expected of me strictly for the fun of it	1	2	3	4

**Work Satisfaction and Work Demands**

The following statements are about your perception of your work. Rate them by the degree to which the statement applies to you and your workplace.

**Please circle one response to each statement.**

	Strongly disagree	Disagree	Agree	Strongly agree
I am better off working here than anywhere else	1	2	3	4
I don't like my work	1	2	3	4
I look forward to coming to work	1	2	3	4
This job is terrible	1	2	3	4
My work is meaningful	1	2	3	4
I enjoy most of what I do at work	1	2	3	4
My work is too repetitive	1	2	3	4
I can't wait to leave work each day	1	2	3	4
I love my job	1	2	3	4
0. My work tires me out very quickly	1	2	3	4
1. There is constant pressure to keep working	1	2	3	4
2. There always seems to be an urgency about everything	1	2	3	4
3. People cannot afford to relax at my work	1	2	3	4
4. Nobody works too hard at work	1	2	3	4
5. There is no time pressure at work	1	2	3	4
6. It is very hard to keep up with your workload	1	2	3	4
7. You can take it easy and still get your work done	1	2	3	4
8. There are always deadlines to be met	1	2	3	4
9. People often have to work overtime to get their work done	1	2	3	4

**Work Preoccupation**

The following statements refer to your thoughts about your work, and the effects of these.  
Rate the statements by the degree to which they apply to you.

Please circle one response to each statement.

	strongly disagree	disagree	agree	strongly agree
I think about work all the time	1	2	3	4
I spend a lot of my spare time thinking about work	1	2	3	4
Work thoughts distract me from my personal life	1	2	3	4
I don't think about work at all once the day is done	1	2	3	4
Family activities often interrupt my work	1	2	3	4
I cant stop thinking about work	1	2	3	4
When I'm not at work I hardly ever think about it	1	2	3	4
I wake up thinking about work	1	2	3	4
Whilst socialising with friends I often think I'd rather be at work	1	2	3	4
0. I often find myself distracted from leisure or household activities by thoughts of work.	1	2	3	4
1. Sometimes I find it hard to pay attention at social events because I am thinking about work.	1	2	3	4
2. I take work home most evenings and weekends	1	2	3	4
3. I leave my work at work	1	2	3	4
4. I work whenever I get a chance	1	2	3	4
5. I work over 50 hours a week most weeks	1	2	3	4
5. Work takes up most of my time	1	2	3	4
7. I frequently look at the time to see if my day at work is nearly over	1	2	3	4
8. I often miss events and activities with family and friends because I'm working.	1	2	3	4
9. My loved ones are bothered by the amount of time I spend at work.	1	2	3	4
0. My family feels neglected by the amount of time I spend at work	1	2	3	4
1 I often work longer hours than I am required to by my organisation	1	2	3	4
2 I put in more hours at work than a lot of people I know.	1	2	3	4



**Work-Family Balance**

The following statements are about the influence of your work on your personal life. Rate them by the degree to which the statement applies to you.

**Please circle one response to each statement.**

	Strongly disagree	Disagree	Agree	Strongly agree
. The demands of my work interfere with my home family life	1	2	3	4
. The amount of time my job takes up makes it difficult to fulfil my family responsibilities	1	2	3	4
. Things I want to do at home do not get done because of the demands my job puts on me	1	2	3	4
. My job produces strain that makes it difficult to make changes to my plans for family activities	1	2	3	4
. Due to work-related duties, I have to make changes to my plans for family activities	1	2	3	4
. The demands of my family or spouse/partner interfere with work related activities	1	2	3	4
. I have to put off doing things at work because of the demands of my time at home	1	2	3	4
. Things I want to do at work don't get done because of the demands of my family or spouse partner	1	2	3	4
. My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime	1	2	3	4
0. Family-related strain interferes with my ability to perform job-related duties	1	2	3	4

## Your Personality

The following statements are about you. Rate them by the degree to which the statement describes you.

Please circle one response to each statement.

	Strongly disagree	Disagree	Agree	Strongly agree
1. I have high standards and work toward them.	1	2	3	4
2. I go above and beyond of what is required.	1	2	3	4
3. I do not work as hard as the majority of people around me.	1	2	3	4
4. I invest little effort into my work.	1	2	3	4
5. I demand the highest quality in everything I do.	1	2	3	4
6. I try to be the best at anything I do.	1	2	3	4
7. I make every effort to do more than what is expected of me.	1	2	3	4
8. I do what is required, but rarely anything more.	1	2	3	4
9. Setting goals and achieving them is not very important to me.	1	2	3	4
0. Getting average grades is enough for me.	1	2	3	4
1. On a whole, I am satisfied with myself	1	2	3	4
2. At times I think I am no good at all	1	2	3	4
3. I feel that I have a number of good qualities	1	2	3	4
4. I am able to do things as well as most people	1	2	3	4
5. I feel I do not have much to be proud of	1	2	3	4
6. I certainly feel useless at times	1	2	3	4
7. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. All in all, I am inclined to feel that I am a failure	1	2	3	4

10.	I take a positive attitude towards myself	1	2	3	4
12	I get satisfaction from competing with others.	1	2	3	4
13	It's usually not important to me to be the best	1	2	3	4
14	I find competitive situations unpleasant.	1	2	3	4
15	I am a competitive individual.	1	2	3	4
16	I dread competing against other people.	1	2	3	4
17	I had to be the best at school	1	2	3	4

**Your Well-being**

The following statements describe your experiences over the last month. Rate the frequency that these experiences have applied to you.

**Please circle one response to each statement.**

		Never	Rarely	Sometimes	Often
	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	1	2	3	4
2	I just couldn't seem to get going	1	2	3	4
3	I tended to over-react to situations	1	2	3	4
4	I had a feeling of shakiness (e.g. legs going to give way)	1	2	3	4
5	I found it difficult to relax	1	2	3	4
6	I found myself in situations that made me so anxious that I was most relieved when they ended	1	2	3	4
7	I felt I had nothing to look forward to.	1	2	3	4
8	I found myself getting upset rather easily	1	2	3	4
9	I felt that I was using a lot of nervous energy	1	2	3	4
0	I felt sad and depressed	1	2	3	4
1	I found myself getting impatient when I was delayed in any way (e.g. lifts, traffic lights, being kept waiting)	1	2	3	4

12	I had a feeling of faintness	1	2	3	4
13	I felt that I had lost interest in just about everything	1	2	3	4
14	I felt I wasn't worth much as a person	1	2	3	4
15	I felt that I was rather touchy	1	2	3	4
16	I perspired noticeably (e.g. hands sweaty) in the absence of high temperatures or physical exertion	1	2	3	4
17	I felt scared without any good reason	1	2	3	4
18	I felt that life wasn't worthwhile	1	2	3	4
19	I found it hard to wind down	1	2	3	4
20	I had difficulty in swallowing	1	2	3	4
21	I couldn't seem to get any enjoyment out of the things I did	1	2	3	4
22	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat.)	1	2	3	4
23	I felt down-hearted and blue	1	2	3	4
24	I found that I was very irritable	1	2	3	4
25	I felt I was close to panic	1	2	3	4
26	I found it hard to calm down after something upset me	1	2	3	4
27	I feared that I would be thrown by some trivial but unfamiliar task	1	2	3	4
28	I was unable to become enthusiastic about anything	1	2	3	4
29	I found it difficult to tolerate interruptions to what I was doing	1	2	3	4
30	I was in a state of nervous tension	1	2	3	4
31	I felt I was pretty worthless	1	2	3	4
32	I was intolerant of anything that kept me from getting on with what I was doing	1	2	3	4
33	I felt terrified	1	2	3	4

34	I could see nothing in the future to be hopeful about	1	2	3	4
35	I felt that life was meaningless	1	2	3	4
36	I found myself getting agitated	1	2	3	4
37	I was worried about situations in which I might panic and make a fool of myself	1	2	3	4
38	I experienced trembling (e.g. In the hands)	1	2	3	4
39	I found it difficult to work up the initiative to do things	1	2	3	4
40	I found myself getting upset by quite trivial things	1	2	3	4
41	I was aware of dryness of my mouth	1	2	3	4
42	I couldn't seem to experience any positive feeling at all	1	2	3	4